

Tu-4 BULL

ADDITION REQUIRED (data for 1997)

Tu-4 - BULL

★★★

Heavy bomber - the last Soviet serial heavy bomber with piston engines - a copy of the American B-29. The development of the long-range bomber in the A.N. Tupolev Design Bureau according to the DVB-202 project was carried out in 1945-1947. But in the end, on the personal instructions of I.V. Stalin, the design bureau developed an exact copy of the American B-29 bomber. The B-4 prototype made its first flight on June 19, 1947 (pilot - N.S. Rybko). Serial production began in July 1947. State tests were completed in 1948. It has been supplied to long-range aviation units since 1949 (the 185th Long-Range Bomber Aviation Regiment in Poltava and the 890th Long-Range Bomber Aviation Regiment in Kazan). The aircraft was produced at Plant No. 22 in Kazan, No. 18 in Kuibyshev and No. 23 in Fili near Moscow until 1951. A total of about 1,000 Tu-4s were produced.



Tu-4 factory No. 2805103 at the Russian Air Force Museum in Monino, 20.09.2008 (photo - Vitaly Kuzmin, <http://vitalykuzmin.net>). KS-1



cruise missiles under Tu-4K (<http://crimso.msk.ru>).

Author: DIMMI

Created: 12.08.2009 22:32:56

Comments: 1

[READ THE FULL ARTICLE >](#)AN602 / product 602

DATA AS OF 2022 (to be updated)

AN602 / product 602 / "Tsar Bomba"

★★★

Thermonuclear bomb with a two-stage charge with nuclear compression like [the RDS-37](#) of ultra-high power. The proposal to create a thermonuclear bomb with a capacity of about 100 megatons was put forward in 1961 by the young theoretical physicist Yu. A. Trutnev - a bomb with a capacity of 100 Mt could scare foreign skeptics who believed that Soviet nuclear scientists were significantly weaker than the American ones. The idea was supported by academicians A. D. Sakharov, Yu. B. Khariton and Ya. B. Zeldovich. In February 1961, the heads of KB-11 sent a letter to the CPSU Central Committee "Some issues of nuclear weapons development and methods of their use", which, among other things, raised the issue of the advisability of developing a charge with a capacity of 100 Mt. The decision to resume nuclear weapons testing and to create a superbomb was made on July 10, 1961, during a discussion in the Central Committee of the CPSU, when the scientific leadership of KB-11 (VNIIEF) reported to N. S. Khrushchev on the possibility of developing a 100 Mt hydrogen bomb.

The bomb was developed in KB-11 by a new group of specialists: Doctor of Physics and Mathematics V. B. Adamsky was recalled from vacation, and a theoretical physicist, a recent graduate of MEPhI, Yu. N. Smirnov, was added to him, as well as the initiators of the superbomb, Candidate of Physics and Mathematics Yu. A. Trutnev and Candidate of Physics and Mathematics Yu. N. Babaev. Academician A. D. Sakharov took over the management of the development. It was planned to begin testing the bombs (cases) on September 1, 1961. However, there was a shortage of computers to perform the required number of calculations. It was necessary to use all the computers of the Mathematical Institute of the USSR Academy of Sciences (the mathematicians of KB-11 worked there at night and on weekends). And only on October 24 (6 days before the tests) the final report on the bomb design and the calculation and theoretical justification was completed. But even then A.D. Sakharov (already without a computer) was additionally working on the necessary modifications.

Six RN202 bomb bodies for R202E charges were taken from the warehouses of NII-1011 in Chelyabinsk-70. The parachute system for the bombs was manufactured by the Moscow NIIPDS. The Tu-95-202 carrier aircraft was at the Long-Range Aviation airfield in Engels awaiting disposal. Urgent measures had to be taken. The aircraft was returned from the write-off category to service, the engines were replaced, a full revision of the power structures, electrical

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and radio equipment was carried out, and repair and restoration work was carried out. After conducting training flights on it, the A.N. Tupolev Design Bureau issued a conclusion on its suitability for combat work.

The task of designing the bomb body and its parachute system was significantly simplified for KB-11 by the fact that the bomb body had been previously developed by NII-1011 (for the "202" product, *see below*).



Model of the AN602 thermonuclear bomb in the museum

Author: [DIMMI](#) Created: 07.03.2022 10:49:18 Comments: [1](#) [READ THE FULL ARTICLE >](#)

Complex 9-A-7660 Kinzhal, missile 9-S-7760 / product 292

DATA FOR 2024 (standard update)
Complex 9-A-7660 "Dagger", missile 9-S-7760 / product 292
★★★★

Aircraft missile system with an aeroballistic missile. Developed jointly by the Machine-Building Design Bureau (Kolomna, missile, system) and RSK MiG (carrier aircraft). Presumably, work on the creation of the system began in the late 1990s - early 2000s, when the idea arose of combining the capabilities of the MiG-31 as a carrier aircraft and an accelerating stage with an aeroballistic missile. The carrier aircraft is a modified MiG-31BM aircraft - MiG-31K product 06 (tail 06 red, chief designer - Yu. F. Sushkov). As a missile - a missile created on the basis of the 9M723 ballistic missile of the Iskander-M missile system. The development of the missile was started by KBM within the framework of the R&D project "292" no later than 2012.

In terms of its capabilities, the aircraft missile system is designed to destroy important infrastructure facilities - command centers, air defense and missile defense systems, air bases, etc. Including with the use of a nuclear warhead. It is also possible to self-guide the missile and use it, accordingly, against limited-mobility targets such as ship formations, individual ships, clusters of equipment, etc.

The MiG-31K prototype aircraft (product 06) made its first flight under the control of test pilots M.A. Belyaev and S.V. Gorbunov on May 31, 2016. In 2021, MiG-31I carrier aircraft will enter service.

In the speech of the President of Russia on March 1, 2018 with the presentation of the Kinzhal missile system, it was reported that since December 1, 2017, the system began experimental combat duty at one of the airfields of the Southern Military District. Presumably, we are talking about the 929th State Flight Test Center of the Russian Ministry of Defense, where the video shown on March 1, 2018 was filmed. In the spring of 2018, operational tests of the missile system began in the Southern Military District. On December 1, 2021, the formation of the second squadron of aircraft carriers of the system was completed and the 54th Long-Range Aviation Regiment of the Russian Aerospace Forces (Akhtubinsk base) was formed from two squadrons.

Western sources report that the tests of the Kinzhal system were to be fully completed by 2020 and the system was to be officially accepted into service ([source](#)).

Information about the complex without citing sources is of a presumptive and hypothetical nature.

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The MiG-31K carrier aircraft (tail number 93) with the 9-S-7760 Kinzhal missile (video frame from the Russian Ministry of Defense, published on March 10, 2018),

Author: [DIMMI](#)

Created: 10.03.2018 10:29:20

Comments: [120](#)

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X-101 / X-102 - AS-23 KODIAK

DATA FOR 2024 (standard update)

Missile X-101 - AS-23A KODIAK

Missile X-102 - AS-23B KODIAK

★★★★

A long-range cruise missile. Developed by the Raduga Design Bureau using the experience of creating the [Kh-55](#) cruise missile. The missile has an increased range, is made using radar signature reduction technologies, and is available in two warhead versions: with a conventional warhead (Kh-101) and with a nuclear warhead (Kh-102). According to unconfirmed reports, development of the missile began in 1984 ([source](#)), in 1992 according to Jane's and, according to media reports, was completed by 1995.

According to Western sources, testing of the Kh-101 missiles together with the Tu-95MS carrier began in early October 1998 in Akhtubinsk. Some sources also indicate that test launches of the missiles were conducted in 1999 and in April 2000 during exercises of the 37th Air Army of the Russian Long-Range Air Force. Flight tests of the Kh-101 missiles in Akhtubinsk continued in 2002 ([source](#)).

The decision to begin serial production of the Kh-101 missiles was made in October 1999. In the fall of 1999, it was also planned to begin re-equipping carrier aircraft like the Tu-95MSM. According to Western data, serial production of the missiles began at the Smolensk plant on December 1, 2002. In our opinion, as of 2010, the Kh-101 and Kh-102 missiles have not yet been accepted into service with the Russian Air Force and are probably undergoing tests. Earlier, there was unconfirmed information about the acceptance of the missiles into service in 1999 and in 2002-2003. The name "product 111" is taken from the source Jane's - there are doubts about its reliability.

On March 20, 2012, Russian Defense Minister A. Serdyukov, speaking at an extended meeting of the Defense Ministry Board, announced that the Russian Armed Forces had received a new long-range air-launched cruise missile. The delivery of Kh-101 missiles to the Russian Air Force was expected in 2013 and was probably started in 2013. On November 17, 2015, the first combat use of Kh-101 missiles took place in Syria, the carrier aircraft were Tu-160.

Identification of missile indices - [source](#)



Kh-101/102 missiles. Prior to launch, the missile's wings are folded under its body, and they unfold after launch; the unfolded wings have a slight sweep and significant dihedral.

Models of the X-101 cruise missile for Tu-95MS, side No. 317 (red), photo published on 27.09.2012 (<http://forums.spacebattles.com> , processed).

Author: [DIMMI](#)

Created: 12.01.2011 17:45:24

Comments: [94](#)

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LMUR / product 305

DATA AS OF 2024 (in progress)

LMUR / Product 305

★★★

Light multipurpose guided missile (LMUR) developed by the Design Bureau of Machine Building (Kolomna). The name "LMUR" first appeared in sources in 2007. The contract for the development of the "Product 305" missile was signed in 2012.

The "Product 305" LMUR missile was initially developed by KBM in the interests of the FSB of Russia to equip special versions of the Mi-8 helicopters (Mi-8MNP-2 and others) of the FSB aviation. The missile was created on the basis of the "Product 79" aircraft missile, which had been developed for a long time for the Russian Ministry of Defense, and was apparently ordered as an analogue of the well-known British Brimstone missile.

Serial production of LMUR missiles was launched for the FSB in 2016, after which the missile began to be purchased for the army aviation helicopters of the Russian Aerospace Forces, and was successfully used by the Aerospace Forces from modified Mi-28N and Ka-52 combat helicopters in combat operations in Syria. In 2020-2021, the LMUR missile is considered as one of the main types of guided weapons of the modernized Mi-28NM and Ka-52M helicopters of the Aerospace Forces, and is also demonstrated at the Army-2021 forum as part of the Ka-52M helicopter armament. At the Army-2021 forum, the missile is exhibited under the index "305E", which indicates that it has also received an export sample passport.

The missile was first demonstrated to the public at the Army-2021 military-technical forum in August 2021. State tests of the missile were completed in 2021. **In September 2022, information appeared in the media about the missile's acceptance into service with the frontline aviation of the Russian Aerospace Forces**. The missile is widely used in the air defense war.



LMUR missile / "product 305" at the Army-2023 exhibition, August 2023 (photo - Internet).

Author: [DIMMI](#)

Created: 26.06.2019 07:49:12

Comments: [2](#)

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Tu-95LAL / Tu-119

DATA AS OF 2024 (in progress)

Tu-95LAL / order 247

Tu-119 (project)



Experimental aircraft with a nuclear power plant. The decree of the USSR Council of Ministers on the commencement of work on the creation of a nuclear aircraft power plant (NAPP) was issued on August 12, 1955. It was assumed that after conducting research and experimental projects, it would be possible to begin creating aircraft with a nuclear power plant after some time. The design work for the NAPP was carried out at the N. D. Kuznetsov Design Bureau and the A. M. Lyulka Design Bureau. The aircraft were designed at the A. N. Tupolev Design Bureau and the V. M. Myasishchev Design Bureau. Work on the aircraft reactor was carried out at the Kurchatov Institute under the supervision of Academician A. P. Alexandrov.

At the first stage of the work, a ground test bench was created to test the aircraft nuclear power plant. On March 28, 1956, the USSR Council of Ministers issued a Resolution to establish a flying laboratory based on the Tu-95M bomber at the Tupolev Design Bureau. The task was to lift a nuclear reactor into the air, provide biological protection for it, and obtain the appropriate measurements and flight operation experience. In 1958, the ground test bench was prepared and work began on preparing the Tu-95LAL (order 247) with a nuclear reactor in the cargo compartment. The reactor was equipped with hydraulic lifts for ease of maintenance. The first launch of the ground test bench reactor was performed at the Semipalatinsk test site in 1959.

The aircraft was re-equipped by 1961, and from May to August 1961, 34 flights were performed on the Tu-95LAL aircraft. The flights of the testbed aircraft were performed with both a "hot" and a "cold" reactor. The main purpose was to test the biological protection of the crew cabin. Based on the test results, a decision was made to continue work on the topic of creating an aircraft with a nuclear power plant - the design of the "119" (Tu-119) aircraft was started.

The performance characteristics and description are mainly given for the Tu-95LAL laboratory aircraft. Data on the Tu-119 project are given with an indication of this project.



The Tu-95LAL flying laboratory aircraft, 1986 (photo by V. Kudryavtsev, Popular Mechanics)

Author: [DIMMI](#)

Created: 29.03.2024 10:45:17

Comments: [1](#)

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FAB-1500 M-54 / FAB-1500 M-54 with UMPK

DATA AS OF 2024 (in progress)

FAB-1500 M-54

FAB-1500 M-54 with UMPK

★★★

High-explosive aerial bomb of 1,500 kg caliber, M-54 form factor. The bomb was developed by GSKB-47 (now NPO Bazalt). The munition is designed to destroy industrial, urban, port facilities and other protected targets. Since 2023, it has been used with a UMPK set (guided planning and correction module).

Bombs are produced by arsenal enterprises of the USSR and Russian Federation Ministries of Defense. Form factor of 1954 model (M-54).

Serial production of UMPK for bombs of this caliber was mastered by the fall of 2023 - at this time, the first cases of using bombs with UMPK in the SVO in Ukraine were noted.

In 2024, the production of FAB-1500 M-54 bombs will be doubled (by 21.03.2024).



High-explosive aerial bomb FAB-1500 M-54 with UMPK at one of the enterprises of the Russian military-industrial complex, 12.01.2024 (video frame of the Russian Ministry of Defense).

Author: [DIMMI](#)

Created: 24.03.2024 15:06:53

Comments: [1](#)[READ THE FULL ARTICLE >](#)

FAB-3000 M-54

DATA AS OF 2024 (in progress)**FAB-3000 M-54**

★★★★

High-explosive aerial bomb of 3000 kg caliber, M-54 form factor. The bomb was developed by GSKB-47 (now NPO Bazalt). The munition is designed to destroy industrial, urban, port facilities and other protected targets.

Bombs are produced by arsenal enterprises of the USSR and Russian Federation Ministries of Defense. Form factor of 1954 model (M-54).

At the end of 2022, a decision was made to resume production of the FAB-3000, probably including for use with the UMPK module (universal planning and correction module). FAB-3000 production resumed in February 2024.



High-explosive aerial bomb FAB-3000 M-54, manufactured in 2024, during a visit by Russian Defense Minister Sergei Shoigu to the "53rd Arsenal", March 21, 2024 (video still from the Russian Defense Ministry).

Author: [DIMMI](#)

Created: 23.03.2024 18:28:15

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A-50 - MAINSTAY

DATA FOR 2024 (standard update)**A-50 / A-50M - MAINSTAY****A-50EI****A-50U**

★★★★

Airborne early warning and control aircraft (AEW&C) / inter-service AEW&C aviation complex. Developed on the basis of the Il-76TD transport aircraft by the Beriev Aircraft Company (chief designer - Sergey Atayants) jointly with the Vega-M Scientific and Production Association and the Instrument-Making Research Institute. Serial production of AEW&C aircraft was carried out by the Beriev Taganrog Aircraft Company. The basic version of the aircraft is equipped with the Shmel radio-technical equipment complex developed by the Vega-M Scientific and Production Association; the chief designer of the radar complex is V.P. Ivanov.

The A-50 made its maiden flight in Taganrog on December 19, 1978. Serial production of the basic aircraft was established at the V. Chkalov Aviation Production Association in Tashkent. A total of about 40 aircraft were produced. The A-50 aircraft was accepted into service by the USSR Air Force in 1985. After 1991, all work on the A-50 aircraft and its modifications was carried out by the Beriev Aircraft Company and the Taganrog Aviation Plant. The A-50 aircraft performance characteristics are listed by default.



A-50U, board No. 47 red, Severny airfield (Ivanovo), 27.06.2012 (photo - Konstantin Vutsen, <http://voutsen-cv.livejournal.com/>).

Author: [DIMMI](#)

Created: 01.11.2011 23:03:47

Comments: [28](#)

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Tu-22M - BACKFIRE

DATA FOR 2024 (standard update)

Tu-22M0 / AM aircraft / product 45-00 - BACKFIRE-A Tu-22M4 / product 45-04 - BACKFIRE-C mod.

Tu-22M1 / product 45-01 - BACKFIRE-A Tu-22M5

Tu-22M2 / product 45-02 / Tu-26 - BACKFIRE-B Tu-22MR / product 45-09 - BACKFIRE-D

Tu-22M3 / product 45-03 - BACKFIRE-C Tu-22M3M / product 45-03M - BACKFIRE-E

★★★★

Medium bomber with variable-geometry wings, carrier of cruise missiles. Developed by OKB-156 A.N. Tupolev. Chief designers - initially - D.S. Markov, since 1992 - B.E. Levanovich. As of 2013, the chief designer of the Tu-22M3, Tu-22MR and modifications is Aleksandr Yuryevich Korenev ([source](#)). Development of the "AM" / "article 45" aircraft was started by Resolution of the USSR Council of Ministers No. 1098-378 dated 28.11.1967 based on the "145" aircraft project and was declared as a deep modernization of the Tu-22K with the installation of a variable-geometry wing on the aircraft. The decree set the deadline for the aircraft's readiness - by the second quarter of 1969. The mock-up commission accepted the draft design in October-November 1967. At the same time, a decision was made to build an experimental series of ten Tu-22M0 aircraft at the Kazan Aviation Plant named after S.P. Gorbunov (now - KAPO named after S.P. Gorbunov) with two options for the astronaut's tail section - without a cannon mount and with it.

The first prototype Tu-22M / "article 45-00" was released on April 10, 1969 and made its maiden flight on August 30, 1969 (crew commander - V.P. Borisov). By the end of 1972, production of experimental Tu-22M0 was completed. The aircraft were used for testing and project refinement. Five Tu-22M0 aircraft were delivered to the Ryazan Center for Combat Training and Application of the USSR Long-Range Air Defense Forces.

The decision to modernize and create the Tu-22M1 aircraft was made in December 1969, the design was carried out in 1970, and on July 28, 1971, the first Tu-22M1 made its maiden flight and production of a small series of pre-production Tu-22M1 aircraft began (1971, 9 units, never entered service with the Air Force, like the Tu-22M0). The first flight of the serial modification Tu-22M2 - May 7, 1973. Serial production of the Tu-22M2 began in 1972. The Tu-22M2 began to be delivered to Air Force units in 1975. Officially, the Tu-22M2 was accepted into service in August 1976. Production was carried out at the Kazan Aviation Plant No. 22 named after S.P. Gorbunov. For more details, see the Modifications section (below).

There is an alternative version of the construction of the Tu-22M0 (source - <http://aviaforum.ru/>), according to which the first two prototypes of the Tu-22M / "product 45" were built by the experimental production of the A.N. Tupolev Design Bureau - Plant No. 156 (MMZ "Opyt", Moscow). The first Tu-22M / "product 45" was produced on April 10, 1969 and is now in the Kiev Aviation Museum with the red tail number 156. We adhere to the official point of view.

Tu-22M3 BACKFIRE-C, side No. 11 red (<http://www.airwar.ru>)Author: [DIMMI](#)

Created: 30.08.2009 16:44:27

Comments: [225](#)[READ THE FULL ARTICLE >](#)

Tu-214R

DATA AS OF 2016 (standard replenishment)

Tu-214R / product 411

★★★★

Integrated electronic and optical reconnaissance aircraft. Developed by Tupolev JSC based on the Tu-214 civil aircraft. Manufactured by Gorbunov KAPO JSC (Kazan). The contract for the manufacture of a mock-up and two Tu-214R aircraft as part of the Fraction-4 R&D project was signed with the Main Directorate of the General Staff of the Ministry of Defense of Russia on November 29, 2002. According to the contract, the aircraft were to be transferred to service with the Russian Air Force by November 15, 2008 after testing and modifications. As of December 2006, the first copy was being completed at KAPO, and the second copy was being completed as a relay aircraft there. The first aircraft was scheduled to be delivered to the customer in 2007, but due to the unreadiness of the avionics, the construction of the aircraft was significantly behind schedule.

The first flight of the lead aircraft RA-64511 was performed on December 24, 2009. The first flight was performed by the crew consisting of: aircraft commander A.I. Zhuravlev, second pilot - S.Yu. Sheffer, flight engineer - E.B. Volkov, navigator - E.A. Kudryavtsev, flight radio operator - I.A. Nikulin, engineer - V.N. Filimoshkin. During 2011, flight design tests of the first Tu-214R prototype were conducted. As of May 2012, the aircraft with the installed equipment complex is at the Air Force Flight Research Institute base in Ramenskoye and, according to unconfirmed data, has begun to undergo the State Testing Program.

In 2010, the second example was being completed in the final assembly shop of KAPO as a Tu-214R for the Russian Ministry of Defense. As of April 2012, the second example is still there, without the side-looking radar complex. According to KAPO's annual report for 2011, the delivery of the aircraft to the Air Force is planned for 2013 and 2014, respectively (at the end of 2009, it was planned to hand over the aircraft to the customer in 2011). The aircraft was completed by the end of 2014 and apparently made its first flight at the end of 2014.



(C) Evgeny Volkov (photo: 0777910)

RussianPlanes.NET

The first public photo of Tu-214R RA-64511, Kazan, May 2012 (photo - Evgeny Volkov, <http://russianplanes.net>).Author: [DIMMI](#)

Created: 17.05.2012 22:06:57

Comments: [25](#)[READ THE FULL ARTICLE >](#)

Meteorite, missile 3M25 / X-80 - SS-NX-24 SCORPION / AS-X-19 KOALA / SSC-X-5

DATA FOR 2013 (standard update)

P-750 / 3K25 "Meteorit-M" complex, 3M25 "Thunder" missile - SS-NX-24 SCORPION**Meteorit-A complex, 3M25A "Thunder" missile / X-80 / product 255 - AS-X-19 KOALA****Meteorit-N complex, 3M25N "Thunder" missile - SSC-X-5 SCORPION**

★★★★

Long-range cruise missile. Developed by OKB-52 (NPO Mashinostroyeniya, Reutov) under General Designer V.N. Chelomey. Preliminary development of the design of a universal supersonic cruise missile in terms of carriers was carried out as part of the Meteorit R&D project since 1973 ([source](#)). The USSR Council of Ministers issued a decree on the creation of sea-, air- and land-based cruise missiles (including the Meteorit universal strategic cruise missile) on December 9, 1976. The missile was designed in three basing variants: sea-based (for Project 949M SSGNs), air-based (for the Tu-95 and possibly the Tu-160), and land-based (probably with a self-propelled launcher). The preliminary design of the sea-based complex was approved in December 1978, and the air-based design in January 1979. The development of liquid engines for the booster stage was conducted by the Chemical Automation Design Bureau (KBKhA) from 1977 to 1988. The missiles were manufactured at the Khrunichev Plant. Preliminary tests of the missile for wing extension and cruise engine launch were conducted at the NPO Mashinostroyeniya in Reutovo.

The first launch of the sea-based version of the Meteorit cruise missile from a ground test site at the Kapustin Yar test site took place on May 20, 1980. The missile failed to exit the launcher container and partially destroyed it. The next three launches were also unsuccessful. In the fifth launch on December 16, 1981, the missile successfully launched and flew about 50 km. According to unconfirmed data, in addition to launches from the ground test site, tests were also conducted using the PSK submersible test site in the Black Sea (probably the Balaklava test site). In total, more than 30 3M25 missile launches were conducted from the test sites in 1982-1987. Flight tests of the missile from the K-420 submarine, [project 667M](#) , consisted of three launches - on 27.12.1983, and one launch each in 1984 (06.11.1984) and 1986.

During the tests, the greatest problems were caused by the refinement of the correction systems based on the radio-contrast radar image of the terrain, failures of the plasma formation system of the cruise missile protection system from radar detection, and, in fact, the cruise missile launch process itself - since it was not possible to implement a supersonic launch of the missile's cruise engine, as envisaged by the terms of reference for the missile's creation.

After the missile development program was terminated (1993), about 15 ready-made 3M25 missiles remained at the Khrunichev plant.

Special thanks to the user "Sluchayny" from the forum <http://militaryrussia.ru> for help in working on the material.

Aircraft missile 3M25A "Meteorit-A" in the launch configuration (<http://testpilot.ru>)Author: [DIMMI](#)

Created: 11.10.2010 22:59:35

Comments: [130](#)[READ THE FULL ARTICLE >](#)

X-55 / X-55SM / X-65 / X-555 - AS-15 KENT

DATA FOR 2023 (standard update)**The Kh-55 / RKV-500A missile / product 120 - AS-15 KENT-A****The Kh-55SM / RKV-500B missile / product 125 - AS-15 KENT-B****The Kh-65E / Kh-65SE****missile The Kh-555 missile - AS-15 KENT-C**

★★★★

Air-launched long-range cruise missile. The design of the missile system with the Kh-55 missile was started by the Resolution of the USSR Council of Ministers dated December 8, 1976 at the Raduga Design Bureau, Chief Designer - I.S.Seleznev.

Earlier, from 1968 to 1970, GosNIIAS conducted the Echo research project, which established that the use of relatively inexpensive long-range subsonic cruise missiles with nuclear warheads, due to stealth and increased accuracy, can be very effective in the conditions of the air defense system of a potential enemy. The enemy's air defense system could be overcome by using cruise missiles in a massive manner with time-series echeloning of the attack. The stealth of such cruise missiles could be achieved by their size, design features, and low-altitude flight with terrain following. In 1971, relying, among other things, on the results of the Echo research and development, the Raduga Design Bureau came up with an initiative to create such a missile, but, mainly citing the low performance characteristics of the proposed missile, the USSR Ministry of Defense refused to create such a missile.

After the intensification of work on the ALCM air-launched cruise missile in the United States in 1975, the USSR Ministry of Defense leadership decided to create a similar missile system. The Resolution of the Council of Ministers of the USSR on the creation of air-based (Kh-55, MKB Raduga), sea-based and land-based cruise missiles was adopted on December 9, 1976. The sea-based and land-based systems were created by NPO Novator ([3K10 Granat](#) and [3K12 Relief](#) complexes). In fact, work on designing the missile was started by MKB Raduga back in the summer of 1976. The general designer of MKB Raduga I.S. Seleznev was responsible for the creation of the new weapons system. Deputy Minister I.S. Silaev supervised the project on behalf of the USSR Ministry of Aviation Industry. On behalf of the Military-Industrial Complex under the Council of Ministers of the USSR, control was exercised by the head of the Defense Department of the CPSU Central Committee I.D. Serbin and the Secretary of the CPSU Central Committee for Defense Issues L.P. Ryabov.



The Kh-55SM missile at the Engels airbase, photo no later than 2005 (photo - Leonid Yakutin, <http://vpk-news.ru>).

Author: [DIMMI](#)

Created: 11/15/2012 11:07:11

Comments: [117](#)

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Kh-59M / Kh-59MK Ovod-M - AS-18 KAZOO

DATA FOR 2023 (standard update)

Kh-59M "Gadfly-M" / product "D-9M" - AS-18 KAZOO

Kh-59MK / Kh-59MK2

★★★

A heavy tactical guided missile. Developed by the Raduga Design Bureau on the basis of the Kh-59 missile in the second half of the 1980s. After the advent of small-sized turbojet engines for long-range cruise missiles, and also due to the fact that the Kh-59 missile guidance system had a large range reserve, it was proposed to modernize the Kh-59 missile.

The missile is designed for high-precision destruction of important tactical objects covered by air defense.

Serial production of Kh-59M missiles was mastered and is carried out by the Smolensk Aviation Plant.



The Kh-59 "Ovod", Kh-59ME "Ovod-ME" and Kh-59MK missiles in the museum on the territory of the "Raduga" design bureau. The destabilizers of the first two missiles are deployed in flight configuration (<http://airmuseum.ru/>).

Author: [DIMMI](#)

Created: 03.04.2016 13:59:20

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MiG-31M - FOXHOUND-B

DATA AS OF 2013 (standard replenishment)

MiG-31M / product 05 - FOXHOUND-B / Improved FOXHOUND

★★★★

Long-range fighter-interceptor. The development of a deep modification of the [MiG-31](#) fighter was initiated in 1984 by the Sokol aircraft plant design bureau (Gorky, later Nizhny Novgorod), chief designer - E.I. Mindrov. According to unconfirmed data, the modernization program was called I-255. The modernization was aimed at lightening the design and improving the manufacturability of the aircraft. The fuel system of the first prototype was significantly modified compared to the basic MiG-31 - the volume of fuel in the internal tanks was increased by 1,500 liters, which led to a change in the aircraft's center of gravity and worsened stability and controllability. The avionics and weapons system of the MiG-31M aircraft were updated. The first flight prototype MiG-31M No. 05-01-01 was assembled by the Sokol aircraft plant in Gorky in 1984 and delivered to Moscow for final assembly to the experimental production facility of the MiG Design Bureau - the Zenit plant. The first flight prototype MiG-31M, side No. 051, made its maiden flight on December 21, 1985 (the crew consisted of test pilot Boris Orlov and test navigator Leonid Popov). Aircraft with side numbers 053, 054, 055, 056 and 057 were involved in the tests. The tests were conducted at the airbase in Akhtubinsk. Aircraft No. 051 and 052 were lost during the tests. State tests of the MiG-31M were completed in April 1994 with the successful destruction of a training air target at a distance of 300 km. Russian President Boris Nikolayevich Yeltsin sent congratulations to the MiG Design Bureau team on the completion of state tests of the MiG-31M and the successful destruction of the target missile.



MiG-31M with K-37 missiles under the fuselage and R-73 under the wing (Angelsky R., Korovin V. Domestic air-to-air guided missiles // Equipment and Armament. No. 9 / 2005).

Author: [DIMMI](#)

Created: 01.03.2012 22:39:25

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PAK DA / product 80 (project)

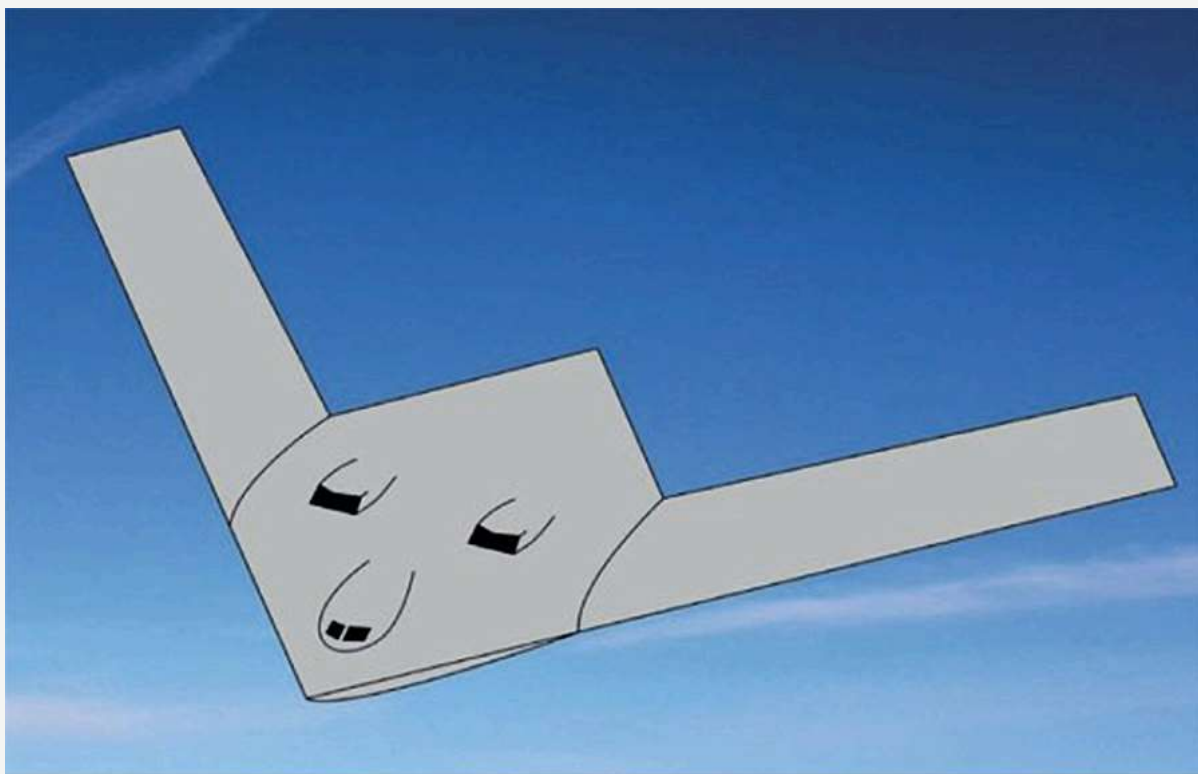
DATA FOR 2023 (standard update)

PAK DA / product 80 (project)

★★★★

The Prospective Long-Range Aviation Complex is a project for a strategic bomber and missile carrier. The PAK DA program (code name) aims to create a long-range bomber to replace the [Tu-160](#), [Tu-95MS](#) (as of the summer of 2009 and earlier) and [Tu-22M3](#) (according to statements made in December 2009) aircraft in service with the Russian Air Force. Preliminary studies of the PAK DA design in design bureaus and the formation of requirements for the aircraft by the Air Force began in 1999. Preparations for the participation of various design bureaus in the competition to create a fifth-generation bomber began in April 2007. In December 2007, it was announced that the Russian Air Force had formulated the tactical and technical requirements for the PAK DA program (interview of the Commander-in-Chief of the Russian Air Force Alexander Zelin with the Interfax agency, December 2007).

Probably, the competition for the development of the PAK DA was attended by the Tupolev Design Bureau, the Sukhoi Design Bureau, the Ilyushin Design Bureau and the Myasishchev Design Bureau. According to media reports, the Tupolev Design Bureau's PAK DA project is being created based on the [Tu-160](#) design. The Sukhoi Design Bureau is most likely either modifying the "Object 54S" PAK DA to meet the competition requirements or developing a project using the developments on the T-4MS theme (1970s). According to the statement by the General Director of OAO Tupolev I. Shevchuk, the contract for the PAK DA program was won by the Sukhoi Design Bureau at the MAKS-2009 exhibition. A.N. Tupolev and in 2009 the Russian Ministry of Defense signed a contract with OAO Tupolev to conduct R&D on a bomber based on the [Tu-160](#) design (while state financing of R&D began in 2008). On 23.12.2009, the president of the Tupolev company, Alexander Bobryshev, announced that R&D on the PAK DA would be completed in 2012 and the design bureau would begin the actual R&D, which would be completed in 2017. In 2011, VNIIRA developed a preliminary design for the avionics integration complex for the PAK DA. The Russian Air Force DA Command issued the design specifications for the bomber on 20.12.2011. By February 2012, R&D on the PAK DA was completed and the aircraft's preliminary design was being developed. The chief designer and first deputy director of the program of the prospective aviation complex of long-range aviation (PAK DA) as of 2013 is Mikhail Yuryevich Aseyev ([source](#)). The factory name of the aircraft - "product 80" - is repeatedly mentioned in the open press. *The data are presumptive and largely reflect the subjective view of the author on the aircraft project.*



Speculative view of the PAK DA strategic bomber. (Piotr Butowski)

Possible image of the future PAK DA according to Piotr Butowski, 2022 (https://twitter.com/piotr_butowski)

Author: [DIMMI](#)

Created: 09/15/2009 20:47:56

Comments: [197](#)

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A-100 Premier

DATA FOR 2023 (standard update)

A-100 "Premier"

★★★★

Airborne early warning and control aircraft (AEW&C) / multifunctional aviation reconnaissance, warning and control system (MACRWS). The design of the system is being developed by the Beriev Aircraft Company together with the Vega-M Scientific and Production Association in accordance with the Decree of the President of Russia dated April 28, 2004. As of 2010, two variants of aircraft carrying the system's equipment were being considered: the Il-76 and the An-124. According to media reports as of 2011, the prime contractor for the system's design is the Almaz-Antey Air Defense Concern OJSC (Vega-M Scientific and Production Association, according to other sources). As of 2011, the choice was made in favor of the Il-76 modification - the promising [Il-476 transport aircraft / "product 476"](#) (Il-76-MD-90A, the first flight was expected in early 2012 or within a year, in 2013-2014 it is planned to complete the tests). In 2011-2015, the design of the A-100 complex and aircraft continues. According to plans, 39 AWACS A-100 aircraft are planned to be built by 2020.

Prehistory of the A-100 project: in 1999, under pressure from the United States, Israel refused to participate in the project to supply China with A-50I AWACS aircraft - an A-50 aircraft with fixed phased array radars of the Phalcon complex (Israel). In 2000, representatives of the Indian Air Force familiarized themselves with the A-50I project and began preparing a contract for the supply of three similar A-50EI aircraft. Apparently, in 2000, a group of specialists headed by Deputy General Designer of the Beriev Air Force Aviation Company A.V. Yavkin and the Afrus company (director - Nikolai Indreevich Kachalov, interior design of the presidential Il-96) prepared a technical proposal for the creation of an aircraft similar to the A-50EI for the Russian Air Force with a Russian radio-technical complex with three large phased array radars under a classic-type fairing - the A-100E - an export version for supply to China. Based on this aircraft and with Chinese funding, it was planned to create an aircraft for the Russian Air Force - the A-100. A technical proposal was submitted to NPO Vega, which refused to participate in the project citing a lack of resources, "although they officially made assurances that only a RTK with a traditional rotating antenna was the optimal solution." This type of radar did not suit the potential customer of the A-100E aircraft - China - and, accordingly, called into question the financing of the entire program. The technical proposal eventually received support from the Tikhomirov Research Institute (headed by Yuri Ivanovich Bely). After the technical proposal was worked out, the 2nd Central Research Institute of the Ministry of Defense of Russia proposed creating a multifunctional aviation reconnaissance, warning and control complex (MACRO) in the interests of aerospace defense. A draft of the technical specifications for the complex has been prepared. Probably in 2002, the materials on the A-100E project and the TTZ project were presented to Igor Klimov, assistant to the chairman of the board of directors of the Almaz-Antey concern V.P. Ivanov (FSB lieutenant general). It was proposed that the Almaz-Antey concern be the lead enterprise for the creation of the A-100E and subsequently the A-100. The project was approved by the presidential administration and accepted by the General Staff of the Russian Armed Forces. After a chain of events that changed the management and owner of the Beriev Aircraft Company (it became the Irkut Association), and also after changes in the Almaz-Antey Air Defense Concern (the death of Igor Klimov on June 6, 2003, who was planned to be approved as the general director of the concern at a meeting of shareholders on June 26, 2003), a contract was signed in 2003 for the creation of the A-100 aircraft with the Russian Ministry of Defense. The Vega Concern was appointed the prime contractor for the complex, and the subcontractor was MNIP named after Tikhomirov. The creation of an export version of the A-100E for China and the use of electronic scanning (radar with phased array) are not expected (according to information from the early 2000s, <http://www.aviaport.ru/conferences/35523/166.html>).

Development and testing. On 08.06.2006, the State Contract for the creation of AWACS aircraft No. 63017 was signed according to the tactical and technical assignment of 06.05.2006 using the A-50 AWACS aircraft as a carrier aircraft for the A-100 system. In 2013, a new technical assignment was adopted for the Premier-476 R&D project, which is being carried out under State Contract No. H/4/2-13-DOGOZ dated 09.12.2013 with a completion date of November 2013. The contract is being carried out by the Vega Radio Engineering Concern in partnership with the G.M. Beriev Taganrog Aviation Scientific and Technical Complex.



(C) bonsai

RussianPlanes.NET

A-100 "Premier" AWACS aircraft, Beriev Aircraft Company, Taganrog, 2019 (<https://russianplanes.net/id263056>)Author: [DIMMI](#)

Created: 05.09.2011 15:18:30

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MiG-25P - FOXBAT-A, -S, -E

DATA FOR 2023 (standard update)

MiG-25P - FOXBAT-A

MiG-25PU FOXBAT-C

MiG-25PD - FOXBAT-E

★★★★

Fighter-interceptor of the MiG-25-40 / S-155 interception complex, [reconnaissance](#), [attack aircraft](#). Search conceptual work was carried out by OKB-155 (MiG) and TsAGI in 1958-1960 under the supervision of Ya. I. Seletsky (probably the E-155 layout variant of 1958-1960 - *see below*). The decision to create the S-155 aircraft and interception complex was made in 1960. At the pre-draft design stage, three variants of a single-fin aircraft with a delta wing were considered - an interceptor (E-155P), a reconnaissance aircraft ([E-155R](#)) and a carrier of attack missiles ([E-155N](#)). The development of the prototype of the MiG-25 in its classic form (a twin-fin aircraft with a trapezoidal wing) in [the reconnaissance](#) and interceptor variants E-155 was started by OKB-155 Mikoyan and Gurevich (later - MMZ "Zenit") by the Order of the State Committee on Aviation Industry of March 10, 1961, which was issued on the basis of the Resolution of the Council of Ministers of the USSR of February 5, 1961 (February 17, 1961 according to other sources). Chief designer - M.I. Gurevich, later - N.Z. Matyuk, since 1976 the work on the aircraft was supervised by Deputy Chief Designer L.G. Shengelaya. The technical specifications set the task of creating an aircraft with a cruising speed of 2.5-3.0M.



MiG-25PD, tail number 62 blue (photo from Sierra archive, website forum).

Author: [DIMMI](#)

Created: 30.07.2010 09:44:19

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ИИ-476 / ИИ-76MD-90А

DATA FOR 2023 (standard update)

ИИ-476 / product 476 / ИИ-76MD-90А

★★★★

Transport aircraft. A deep modernization of the ИИ-76MD transport aircraft, the ИИ-76MD-90А, was developed by the Ilyushin Design Bureau together with the AviaStar Aviation Plant Design Bureau (Ulyanovsk). According to unconfirmed reports, preliminary development of the modernization project was underway in the late 1980s and early 1990s. The decision to transfer ИИ-76 production from Tashkent (Uzbekistan) to Russia at the AviaStar Aviation Plant in Ulyanovsk was made in 2006 ([source](#)). Development of the ИИ-76MD-90А was generally completed by spring 2009. During 2009, it was planned to sign a contract for the production of a series of 6 ИИ-476 aircraft for India. During 2010, it was planned to build a prototype of the aircraft for endurance testing at TsAGI, and in 2011 to begin serial production of the ИИ-476.

Construction of the first flying prototype "01-02" began in the second half of 2009. In November 2009, a contract was signed between OAO UAC-TS and the Russian Ministry of Industry for "implementation of work on a modernized version of product 476." The tests of the aircraft were planned to begin in 2012. In the first half of 2010, the media reported plans to complete the construction of a prototype by July 2011, and a sample for static tests in October 2011. As of April 2011, all efforts were focused on the construction of the flight model "01-02" - the first flight of the aircraft was postponed to the beginning of 2012, but unofficial sources at the aircraft plant "AviaStar" named a more realistic date - October-November 2012.

In 2011, as previously planned, the construction of the "01-01" aircraft for static endurance tests was completed and the aircraft was transferred to TsAGI in early October 2011. Testing of the sample for static tests was postponed to 2012 and their completion was planned for the spring of 2012.

Construction of the first flight aircraft "01-02" was completed in December 2011 - the rollout took place on 15.12.2011. The first flight of aircraft 01-02 was expected in April 2012. On July 5, 2012, the ИИ-476 (No. 01-02) was rolled out again - the aircraft was transferred to the plant's flight test station. Now the aircraft's first flight was expected in August-September 2012. As of August 1, 2012, the aircraft is again in the plant's assembly shop. By August 23, 2012, the aircraft systems debugging was completed, the aircraft was again moved to the flight test station of the AviaStar plant.

The name "ИИ-476" is not official.



Tu-160MD-90A in Air Force livery arrived in Ramenskoye, 30.01.2013 (photo - Alexey Mikheev, <http://www.take-off.ru>).

Author: [DIMMI](#)

Created: 22.01.2012 17:24:23

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Prospective long-range cruise missile Kh-BD (project)

DATA FOR 2023 (requires updating)

Prospective long-range cruise missile Kh-BD (project)

★★

Project of a promising long-range cruise missile. The development of the cruise missile is being carried out by GosMKB Raduga as of 2016. On 23.02.2017, the scientific director of GosNIIAS Evgeny Fedorov said in an interview that the project of the modernized Tu-160M (Tu-160M2) aircraft includes a promising long-range cruise missile. Probably, as of 2017, work is underway to formulate requirements and determine the appearance of the new missile. The flight range of the new missile will significantly exceed 3,000 km - the flight range of the Kh-101 ([source](#)).

According to Fedosov: "Today, a concept has emerged: not to introduce long-range aircraft into the enemy's air defense zone. It (the carrier aircraft) must operate outside this zone, and the weapons enter the zone. If such an aircraft carries a lot of weapons, then the principle of information degradation of the enemy's air defense begins to work again. Without entering the enemy's air defense zone, but launching a missile there, we dictate the direction of the strike, the moment and the density. And if you reconnoiter the enemy's air defense well, then we will always find a bottleneck and throw a group into this throat. If we are talking about a strategic nuclear strike, then at least one missile will always pass. And that will be enough" ([source](#)).

On September 16, 2023, during the demonstration of Russian Aerospace Forces aircraft to the leader of the DPRK Kim Jong-un, a Tu-160 "Vladimir Sudets" aircraft with missiles was demonstrated - with the commentary it was stated: " Two cassettes of six missiles. Carries the Kh-BD missile with a range of over 6.5 thousand kilometers." From which we can conclude that the Kh-BD missile has been adopted by the Russian Aerospace Forces as of September 2023.



Missiles under the Tu-160 "Vladimir Sudets" carrier shown on 09/16/2023 (photo - RIA Novosti)

Author: [DIMMI](#)

Created: 24.02.2017 08:53:46

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